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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|--------------------------|------------------|
| 10/649,660 | 08/28/2003 | Akiko Maru | 01272.020627. | 6923 |
| 5514 | 7590 | 01/27/2005 | EXAMINER | |
| FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112 | | | STEPHENS, JUANITA DIONNE | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2853 | |
| DATE MAILED: 01/27/2005 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

OK

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/649,660 | MARU ET AL. | |
| | Examiner | Art Unit | |
| | Juanita D. Stephens | 2853 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Application filed 8/28/03.
- 2a) ☐ This action is FINAL.
- 2b) ☒ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 1-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some * c) ☐ None of:
 - 1. ☒ Certified copies of the priority documents have been received.
 - 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/14/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figures 19 and 20 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

4. Claims 1-8 are objected to because of the following informalities:

In claim 1, line 11 replace "the dot arrangement" with --the dot arrangements--.

In claim 1, line 14 replace "the dot arrangement" with --the dot arrangements--.

In claim 1, line 17 replace "the repetition sequence" with --a repetition sequence—.

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In claim 1, line 18 replace "the raster direction" with –a raster direction--.

In claim 3, line 3 replace "the dot arrangement" with –the dot arrangements--.

In claim 4, line 4 replace "the dot arrangement" with –the dot arrangements--.

In claim 6, page 54, line 5 replace "the dot arrangement" with –the dot arrangements--.

In claim 6, page 54, line 8 replace "the repetition sequence" with –a repetition sequence—.

In claim 6, page 54, line 9 replace "the raster direction" with –a raster direction--.

In claim 7, line 11 replace "the dot arrangement" with –the dot arrangements--.

In claim 7, line 14 replace "the dot arrangement" with –the dot arrangements--.

In claim 7, page 55, line 2 replace "the repetition sequence" with –a repetition sequence—.

In claim 7, page 55, line 3 replace "the raster direction" with –a raster direction--.

Appropriate correction is required.

Allowable Subject Matter

5. Claims 1-8 would be allowed after corrections as identified in the "claim objection" section is made.

6. The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not teach, suggest, or render obvious the combination of an allocating step of using an A X B matrix created by combining a plurality of different M X N dot arrangements in both raster and column directions as a minimum unit, the dot

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arrangements corresponding to the same level of input image data quantized into multivalued levels, and allocating the dot arrangements in the matrix to the input image data, and a printing step of forming dots on the printing medium on the basis of the dot arrangements of the matrix allocated to the input image data, and wherein, in the matrix, A kinds of dot arrangements are arranged for each raster, the repetition sequence of the A kinds of dot arrangements in the raster direction is the same for every raster, and a starting position of the repetition sequence are different in every raster, recited in claims 1 and 7. By this arrangement the periodicity of the dot patterns in the image yields only a high spatial frequency characteristic, thus reducing the sense of noise in the image further, increasing image quality.

The prior art does not teach, suggest, or render obvious the combination of allocating means for using an $A \times B$ matrix created by combining a plurality of different $M \times N$ dot arrangements in both raster and column directions as a minimum unit, the dot arrangements corresponding to the same level of input image data quantized into multivalued levels, and allocating the dot arrangements in the matrix to the input image data, and printing control means for forming dots on the printing medium on the basis of the dot arrangements of the matrix allocated to the input image data, and wherein, in the matrix, A kinds of dot arrangements are arranged for each raster, the repetition sequence of the A kinds of dot arrangements in the raster direction is the same for every raster, and a starting position of the repetition sequence are different in every raster, recited in claim 6. By this arrangement the periodicity of the dot patterns in the

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image yields only a high spatial frequency characteristic, thus reducing the sense of noise in the image further, increasing image quality.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The prior art of Fujita et al. (US 6,491,373 B1) discloses a printing apparatus (Fig. 14) in which rasters are printed by two columns of ejection openings, wherein the two columns are shifted from each other by a half of a pitch at which the ejection openings are arranged in the column, wherein when allocating input image data quantized into multi-valued levels to 2x2 dot array as pseudo half-tone processing before printing, the mutually different plural dot arrangements are applied concerning each level of the input image data, and the plural dot arrangements are cyclically changed in the main scanning direction according to predetermined rules, and also equalization processing for equalizing the number of said adjoining two raster dots is properly performed in the one cycle, **but does not disclose** allocating step of using an A X B matrix created by combining a plurality of different M X N dot arrangements in both raster and column directions as a minimum unit, the dot arrangements corresponding to the same level of input image data quantized into multivalued levels, and allocating the dot arrangements in the matrix to the input image data, and a printing step of forming dots on the printing medium on the basis of the dot arrangements of the matrix allocated to the input image data, and wherein, in the matrix, A kinds of dot arrangements are arranged for each raster, the repetition sequence of the A kinds of dot

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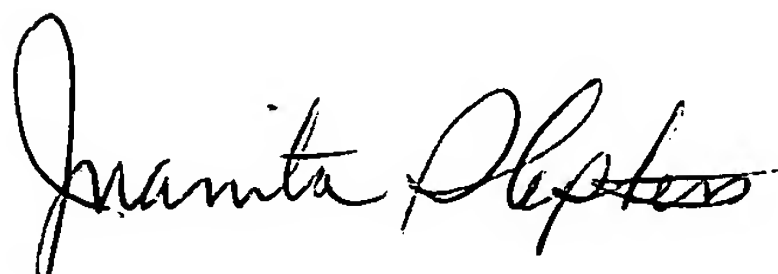
arrangements in the raster direction is the same for every raster, and a starting position of the repetition sequence are different in every raster

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juanita D. Stephens whose telephone number is (571) 272-2153. The examiner can normally be reached on Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


January 24, 2005

Juanita D. Stephens
Primary Examiner
Art Unit 2853